



Radiation Safety Information Bulletin

**TACOM-Rock Island
Safety Office**

Radiation Safety Officer 2002 Workshop

Issue 02-02

February 2002

Special points of interest:

- Have you registered for the 2002 RSO Workshop?
- RAD Computer Based Training is available on CD.
- Are you familiar with ALARA principles?
- Learn about a new checklist that will save you a lot of time.
- Who should you call if you have a release of radioactive material?
- Do you have an AEPs pass-word?

The TACOM-RI Safety Office is hosting the 3rd Annual Radiation Safety Officer (RSO) Workshop in August 2002. This annual RSO workshop has been a great success in bringing the Army Radiation community closer since it is the only workshop Army wide that primarily concentrates on RSOs at all army echelons. The continued suc-

The 3rd Annual Radiation Safety Officer (RSO) Workshop is scheduled from 12 - 16 Aug 2002 at the 4 Points Sheraton, Rock Island, Illinois.

cess of our workshop is directly proportional to participation by this remarkable community. We regret last year's cancellation and realize that our workshop is critical in forwarding the Army's radiation mission since many of our licenses di-



rectly affect the war fighter's weaponry. The Army Radiation Safety Program is constantly evolving. What is not always clear is how the program works for you. This year's workshop focuses on how program developments affect you and ways to better support our customer, the soldier in the field. The 3rd annual workshop will be an excellent forum for discussing and resolving Radiation Safety concerns in a timely manner. The workshop is a great way to network with your colleagues, to learn about available resources such as training, assist visits, incident response, etc., and to meet the different

licensees.

Remember, this is an Army Radiation Safety Officer (RSO) workshop. Participation is encouraged from all levels of personnel, including NBC personnel, National Guard (unit to state level RSOs), Army Reserves (unit to regional RSOs), regular CONUS/ OCONUS forces RSOs

12 Aug 02 Arrive, Register, Mixer
13 Aug 02 Workshop
14 Aug 02 Workshop
15 Aug 02 Workshop, Banquet
16 Aug 02 Depart

and MACOM RSOs and anyone else who would

We anticipate the fee to be \$100. The POCs are Wayne Cook and Cindy Ackerman, email: CookW@ria.army.mil, (DSN 793-2429 or ackermanc@ria.army.mil, (DSN 793-0861).

We look forward to seeing you.

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Topics

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**RSO
2002
Workshop**

Radiation Safety Officer 2002 Workshop (continued)

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like to attend. We are soliciting presentations for this year's work-

We are actively soliciting presentations for this year's workshop agenda and would really like to hear from RSOs at all levels.

shop agenda and would really like to hear from RSOs at all levels. Presentations must be applicable to DOD radiation including ionizing and non-ionizing radiation including lasers and radio frequency (RF). If you have ideas for topics (technical papers); speakers; or would like to make a presentation



yourself, we want to hear from you! The Workshop will begin on 12 Aug 2002 at the 4 Points Sheraton, Rock Island, Illinois at 7:00PM with a welcome mixer. The mixer is a "no host" event and will feature a cash bar and snacks. The Workshop will officially commence on Tuesday 13 Aug 2002 at 8:00 AM and conclude with a cocktail party and dinner

banquet on Thursday night 15 Aug 2002. A tentative agenda and the location will be posted on the TACOM-RI website shortly (<http://www-acala1.ria.army.mil/LC/RS/RS/conf.htm>). If there is a topic you would like to see addressed please contact Wayne Cook, DSN

A tentative agenda and the location will be posted on the TACOM-RI website.

793-2429, (309) 782-2429, email: cookw@ria.army.mil. Please submit your ideas now while there's still room on the agenda. Let's make this the best workshop ever! Thank you for your continued support.

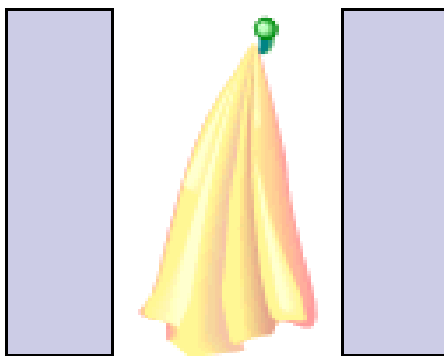
WIPE IT OR TAKE YOUR CHANCES!

Let us weigh into a growing issue! Where is it written that one must wipe test a tritiated FIRE CONTROL DEVICE prior to packaging it for shipment? You've been searching the regulations for the paragraph, the sentence and indeed the very word that sets forth this 'requirement'. But, you just can't find it! Therefore, you need not do it!

Where is it written that one must wipe test a tritiated FIRE CONTROL DEVICE prior to packaging it for

Good thinking right? WRONG!!! We will attempt to make a sensi-

ble answer to your quest. An an-



swer has been touched upon in many responses to the quest, BUT the full-orbed answer remains unclear! This is because the answer is NOT to be found as a 'requirement' within a regulation. Not directly, that is!

The answer requires one to think through the regulatory require-

The answer requires one to think through the regulatory requirements and apply 'good radiological practices', reason and prudence.

ments and apply 'good radiological practices', reason and prudence.

So, let's make a humble attempt to do just that!

The fact is, a wipe test must be performed prior to shipment of a radiological component.

(Continued on page 3)

WIPE IT OR TAKE YOUR CHANCES! (continued)

(Continued from page 2)

Generally, this wipe test is of the outer packaging to ensure the requirements for shipping radioactive commodities found in 49 CFR 173.443 are met. The requirements of 49 CFR 173.443, paragraph (a), state that "the level of non-fixed (removable) radioactive contamination on the external surface of each package offered for transport must be kept as low as reasonably achievable (ALARA)" and "may not exceed the limits set forth in table 11" listed by the 49 CFR 173.443. Table 11 states that the limit for outer packaging is contamination less than 2,200

If the radioactive item being shipped has a sealed, SOLID source, a wipe of the outer package is sufficient to meet the requirements of 49 CFR 173.443.

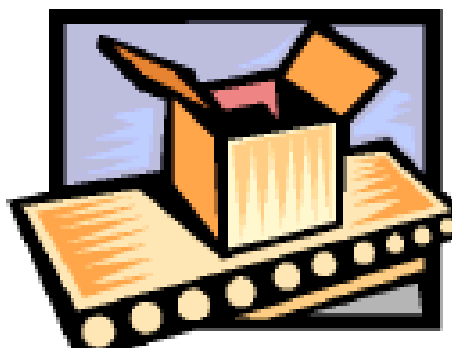
dpm/100cm². To meet this requirement, one must first determine the type and condition of the radioactive item being packaged for shipment.

If the radioactive item being shipped has a sealed, SOLID source, a wipe of the outer package is sufficient to ensure the requirements of 49 CFR 173.443 are met (i.e. the ALARA and table 11 limits). The contamination levels noted on the outer packaging, at the time of the pre-shipment wipe, will most likely not increase during shipment even if the item and/or the source had been damaged. However, if the item being packaged has a source containing tritium



ium gas, a pre-shipment wipe of the outer packaging MAY NOT reflect the contamination level a few short hours later. Although tritium sources are called 'sealed sources', they continuously 'off gas' tritium, and in fact are highly susceptible to excessive leakage and/or breakage. If the item to be shipped is contaminated due to excessive 'off gassing' of tritium or a damaged source, the tritium contamination WILL soon permeate the packaging materials and contaminate the outer surface of the package. Wipes of the package prior to shipment WILL NOT ensure ALARA or that Table 11 limits are met.

Therefore, take time to determine the type of radioactive material being shipped. And if it contains a tritium source, be sure to determine the contamination status, prior to packaging. These common sense, prudent and well-reasoned radiological practices



can prevent a contamination headache down the road!

Although it is TRUE that pre-packaging wipe tests are NOT required by regulation, per se!

'Good radiological practices', reason and prudence dictate a need to wipe test tritiated devices prior to packaging, if the requirements of 49 CFR 173.443 are to be met! Good intent, in wiping the outer packaging, will not prevent potential contamination of the outer packaging from a contaminated tritiated device.

There have been several contamination incidents in which an outer package was wipe tested and declared 'clean' at the shipping Unit, only to arrive at the destination highly contaminated with tritium. A wipe of the tritium-containing item itself, prior to packaging,

Take time to determine the type of radioactive material being shipped. And if it contains a tritium source, be sure to determine the contamination status, prior to packaging.

would have prevented the subsequent contamination incident. An 'ounce of prevention' would have prevented a very costly clean up 'down the road'! We hope this somehow helps in your understanding of why we ask you to perform a pre-packaging wipe of item containing tritium. Please contact us with any questions. We would enjoy any dialog on this or other radiological issues.

Protection Principles

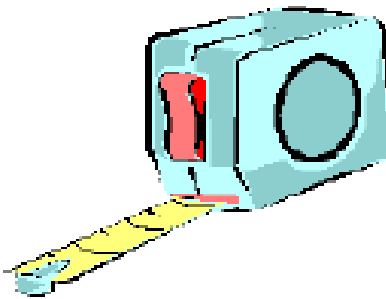
U.S. federal regulations have established an explicit As Low As Reasonably Achievable (ALARA) program. But many times we have become complacent in those day-to-day tasks that make up the majority of the radiation protection program. The statutory authority for the ALARA principle is contained in 10 CFR Part 20.1101.

The lack of a comprehensive biological model that can accurately predict the results of a

certainly prudent to keep radiation doses ALARA. Note that the ALARA principle applies not only to individual doses, but also to collective doses.



U.S. federal regulations have established an explicit As Low As Reasonably Achievable (ALARA) program. The statutory authority for the ALARA principle is contained in 10 CFR Part 20.1101.



dose of radiation to a person underlies the need for the ALARA principle. Current radiation protection guidance and regulations are the result of tests performed with high doses of radiation delivered at dose rates which are very high compared to occupational exposure conditions. As a result of the uncertainty connected with radiobiological problems, it is cer-

The commitment to maintaining radiation exposures ALARA lies with every individual. Specific individual responsibilities at every echelon, from the licensee to the users, are written as policy statements in the form of Army Regulations, Technical Manuals, and Standard Operating Procedures (SOPs). These policies incorporate proven techniques that can be used to control exposures, but are often not followed. Familiarity does breed contempt. We become too familiar with some procedures or techniques, we tend to become lax and caution is thrown to the wayside. These policies/techniques should be given to new employees in written form (SOPs) prior to them performing their duties. It is impera-

tive that everyone understands and follows these procedures when performing maintenance or tasks involving a set of complex regulations such as in the handling/transport of radioactive material.

One, or all three of the proven techniques for reducing radiation exposure (time, distance, shielding) can be applied to all

One, or all three of the proven techniques for reducing radiation exposure (time, distance, shielding) can be applied to all facets of your daily operations to maintain doses ALARA.

facets of your daily operations to maintain doses ALARA. Constant vigilance, not only by personnel in charge of radiation protection programs, but each individual is required to make any program work.



New AMC Consolidated Inspection Checklist



What are the benefits?

Tailor checklists.

Sort questions.

Save time.

There is a new inspection checklist on the horizon! What's new about it, you ask? Well for starters, it resides in a database format. What's the advantage of

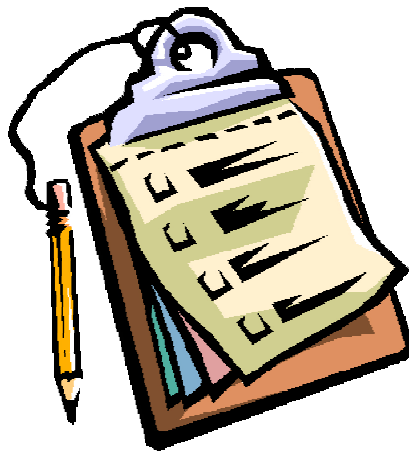
You can also reuse questions more than once. For example, if each commodity checklist uses a similar question, why input it over and over? You just have to input it once! This makes it easy to ensure questions are consistent

that? The advantage of a database is that it makes the checklist dynamic, i.e., you can generate different checklist reports for different scenarios. For example, if you just want a tritium checklist for an arms room, you select the right parameters, and Voila! It spits out a checklist with just the questions needed for storing tritium in an arms room!

Another nice thing about a database is that you can sort the ques-

tions in various ways. This helps to get similar questions "together" so you can easily compare them. You can also reuse questions more than once. For example, if each commodity checklist uses a similar question, why input it over and over? You just have to input it once! This makes it easy to ensure questions are consistent across the board! Pretty cool huh?

But, what I like most of all about a database is that you can finally put the checklist on a dynamic interac-



tive web site! No kidding! In fact, we're working on one now residing on the Army Electronic Product Support (AEPS) system. It is still in "**DRAFT**" form and NOT for official implementation yet. But, you can get a sneak peek at: https://aeps2.ria.army.mil/services/radiation/rad_db/index.htm. Or checkout a static version of TA-COM-RI's tritium checklist at: <http://www-acala1.ria.army.mil/LC/R/RS/nrc.htm> or <http://www-acala1.ria.army.mil/LC/R/RS/checklisth3.htm>.

Just a few pointers:

The references found below each question in smaller print are preceded by a keyword.

The references in the funny little curly brackets are unique references (i.e., references applicable to just one commodity/license).

The number at the end of each question in small print is the "absolute" question number (as opposed to the "relative" question number up front).

Not all the features mentioned above are fully implemented on the web site yet and some MSC's checklists are temporarily offline. To obtain an AEPS username and password go to: <https://aeps.ria.army.mil/aepspublic.cfm> and click on "Access Request Form."

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We're interested in your feedback.

We're interested in your feedback. Please direct any suggestions/questions to Mr. Ignacio Nevarez, DSN 793-0265, email nevarezi@ria.army.mil or Mr. Gavin Ziegler, DSN 793-2995, email zieglerg@ria.army.mil. So, study up! You now have in one place all the questions you'll need to pass the final exam!

Is Anyone Out There ?

To say that it has been quiet on the Radiation Safety Side of the TACOM-Rock Island Safety Office lately would be an understatement. Actually it has been pretty dead as far as hearing much from you folks out there. Naturally we would like to think that the profound silence is due to the fact that you all are doing well with radioactive fire control devices and no bad things are happening that need reporting.

The Nuclear Regulatory Commission is the driving force behind all this need to report incidents to us. The Title 10 Code of Federal Regulations demands that licensees maintain control over their authorized radioactive isotopes.

The release of licensed radioactive isotopes either by breakage of a source or by the loss or theft of sources represents loss of licensee control.

The release of licensed radioactive isotopes either by breakage of a source or by the loss or theft of sources represents loss of licensee control. Radioactive materials that are at large for any of these reasons could represent a danger to the general public. Therefore efforts must be made either to contain the material, which is what we do by decontamination efforts, or take actions to locate and hopefully recover lost or stolen sources.

Generally the NRC requires li-



For tritium the reporting requirements become a concern with any release or loss over 10 millicuries. Most of the sealed tritium sources in our fire control devices exceed this number.

licensees to report to them significant releases or losses of radioactive materials and sources within specified time periods. For tritium the reporting requirements become a concern with any release or loss over 10 millicuries. Most of the sealed tritium sources in our fire control devices exceed this number. Reporting time periods to the NRC vary from thirty days to immediate depending upon activity of the source and the isotope.

That is a lot to remember. The only thing you really need to re-



member is that the job of reporting releases and losses of material to the NRC is ours, your friendly licensees. Your job is to report losses and releases of radioactive material to us! All you have to do is call us if anything happens to a tritium source or if you think you think something might have happened such as when a level vial is broken on a fire control device. We will talk you through what needs to be done to address the situation if you are at a loss.

Bottom line, report to us quickly when something bad happens or if you think it has and then follow up as you get more information.

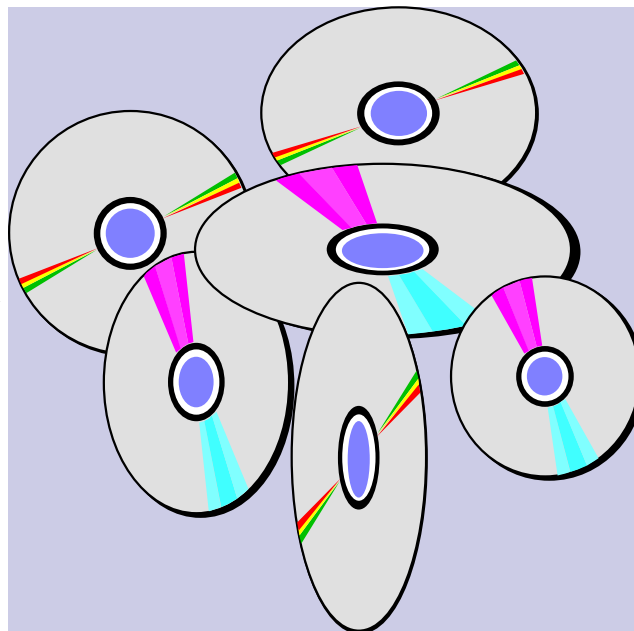
We will sort through the regulatory issues and determine when it needs to be reported to the NRC. We will ask you to follow up on the reports that you make when more information is necessary like bioassay and wipe test results because the NRC will also be interested.

Most of the time, when incidents are reported in a timely fashion, the NRC says thank you and that is the end of it. When a lapse of time is evident between the occurrence and the report there is a chance that things can get ugly. Bottom line, report to us quickly when something bad happens or if you think it has and then follow up as you get more information. We will greatly appreciate it.

Radioactive Material Handling Safety Training CD

Modules 1-4 (Version 1.1) are now available

Modules 1 through 4 of the Radioactive Material Handling Safety course have been reissued as version 1.1. The new version incorporates changes in the NRC license, new addresses for shipping wipe test samples, and other improvements suggested from the field. Copies of version 1.1 can be requested on-line from the Defense Ammunition Center website at www.dac.army.mil/AS/.



In addition to the instructional portions of the program, the Options Menu provides many useful reference features. It contains instructions on how to use the course, a glossary of technical terms, a list of published references, and various points of contact.

In order to take full advantage of this computer based training opportunity, you'll need access to a computer with a Windows 95, 98, or NT operating system. It

should have at least a 233 MHz processor, a minimum of 32 MB of RAM, a 24x CD-ROM drive, a 4MB video card in High Color (16 bit) Mode, and a 16 bit Sound Blaster compatible sound card. Video display settings should be set at 640 x 480 for a full screen

Latest and Greatest (Version 1.1) is now Available

In addition to the instructional portions of the program, the Options Menu provides many useful reference features.

Module 5 (new) is now available - MC-1

A new radiation safety module is now available on CD-ROM. This module covers the MC-1 Density and Moisture Tester and serves as a training and reference resource for personnel working with that commodity.

It is the fifth module in the radiation safety series and contains 200 screens of interactive instruction organized into six separate lessons. These lessons provide the student with information on the operating principles of the MC-1; regulations governing its use; specific storage, maintenance, and user requirements; how to perform wipe tests and surveys; shipping requirements; and emergency

scenarios.

Additional modules covering other commodities will be released as they become available.

The Computer Based Training format allows individuals to study at their own pace and at their own convenience. The program keeps track of the student's progress and bookmarks their page whenever they exit the program. Each lesson includes audio narration, interactive graphics and a series of review questions to prepare for the exam.

After completing a module, the student can receive official credit by passing the exam for that module. The test results can be automatically forwarded for entry into the Army Training Requirements and Resources System (ATRRS).

In order to take full advantage of this computer based training opportunity, you'll need access to a computer with a Windows 95, 98, or NT operating system.

display. The program can be operated on some computer systems with lower rated specifications, but it may run slower or not allow full use of all of its features.

Please direct any requests for CDs or questions to TACOM-RI, DSN 793-6499, email AMSTA-LC-SF@ria.army.mil.



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**[http://www-acala1.ria.army.mil/
LC/R/RS/safe.htm](http://www-acala1.ria.army.mil/LC/R/RS/safe.htm)**



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